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Mental Health Disorders Among Hidradenitis Suppurativa Patients – A Review of Literature

Abstract

Introduction and objective: Hidradenitis suppurativa (HS) is a chronic skin condition that primarily affects areas of the body with a high concentration of sweat glands, characterised by painful papules, abscesses and scarring. It occurs in approximately 1-4% of people and is frequently associated with other health problems such as obesity, smoking and metabolic problems. HS can cause both physical and psychological suffering beyond simple pain. This review aims to assess the mental health challenges of people living with HS.

Review methods: All data were collected from publicly available sources. This article's databases were accessed via PubMed, Scopus, and Web of Science.

A brief description of the state of knowledge: HS is more than a dermatological disorder; it's intimately associated with multiple other conditions. Patients affected by HS have a greater prevalence of depression, anxiety, and other mental health disorders. The psychological toll of HS is significant, with research indicating elevated rates of conditions such as bipolar disorder, schizophrenia and substance abuse. The association between physical health and mental well-being is an important concern, as these mental health challenges can lead to the further decline in a patient's quality of life and increase the risk of self-harm or suicide.

Summary: Overall, although HS is primarily a physical health issue, its psychological implications must not be overlooked. People are increasingly prone to depression, anxiety and other mental health issues. These psychological issues can be a vicious cycle of suffering that impacts their general wellbeing. Treating both the somatic and mental implications of HS must be a priority for enhancing patient outcomes.

Keywords: hidradenitis suppurativa, mental health, depression, anxiety, schizophrenia, bipolar, suicide, drug abuse

Introduction

Hidradenitis Suppurativa (HS) is a chronic, recurrent inflammatory skin disease characterized by multiple painful skin lesions such as nodules, abscesses, cysts, fistulas, and disfiguring scars [1]. The inflammatory lesions occur in areas containing apocrine glands, primarily where the skin is exposed to friction and perspiration, such as the axillae, groin, perianal area, perineum, and submammary region [2, 3]. HS affects approximately 1-4% of the population (more commonly women), with peak prevalence observed among young adults [1, 3]. The etiology of HS is not fully understood, and its development is believed to be influenced by genetic, environmental, and behavioral factors [2]. Recent studies have shown that obesity and smoking play a key role in the pathogenesis of the disease [1].

Clinically, HS lesions are described as painful, purulent, deep-seated, and scarring, often accompanied by the discharge of foul-smelling purulent material and associated pain and pruritus, which significantly reduces the quality of life for affected individuals [1, 3, 4]. In addition, comorbidities associated with HS, such as metabolic syndrome, diabetes mellitus (especially type II), cardiovascular diseases, autoimmune disorders, and spondyloarthropathy, negatively impact the daily functioning of patients [4, 5]. These factors, in combination with the stigma often experienced due to the disease, contribute to a significant deterioration in their mental health [1, 4]. For these reasons, HS is considered one of the most life-altering dermatological diseases [6].

Objective

The aim of this paper is to assess the mental health challenges faced by patients affected by HS, focusing on the psychological impact of the condition and its association with disorders such as depression, anxiety, bipolar disorder, schizophrenia, substance abuse, and suicide.

Methodology

For this narrative review all data were collected from publicly available sources. Three bibliographic databases: PubMed, Scopus and Web of Science were screened in January 2025. The combination for records extraction was [hidradenitis suppurativa and (mental disorders or mental health or depression or suicide). Only studies in English were retrieved. There were no time restrictions on the publication dates of research papers. Conference abstracts and book chapters were excluded. The reference lists of identified studies were searched for additional articles. Duplicate studies were removed using Rayyan - a web and mobile app for systematic reviews [7].

The studies were screened based on the title and abstract and then selected for full-text review by the first author (AT). Decisions were also recorded in Rayyan. Relevant data from included articles were collected by two researchers (AT, LM). One meeting of the whole team was organized to review included studies and establish the subsections for this article.

Results

Eventually all studies were sorted into eight themes: Pathophysiology of HS and Mental Health, The Impact of HS on Patients' Lives, Depression, Anxiety, Bipolar affective disorder, Schizophrenia, Suicide, Substance abuse.

Pathophysiology of HS and Mental Health

Hidradenitis suppurativa (HS) is strongly linked to a high prevalence of psychiatric disorders, including depression, anxiety, substance abuse, and an elevated risk of suicide. Studies reveal that individuals with HS exhibit a significantly greater likelihood of developing mental health conditions compared to controls, with an adjusted odds ratio of 2.53 for any mental health disorder [1]. Among pediatric populations, HS is associated with increased rates of depression compared to their healthy counterparts, while anxiety rates appear lower than those observed in adult patients. These findings underscore the importance of enhanced screening and early detection of psychiatric conditions in children with HS to optimize their overall quality of life [8]. A link between HS and mental health issues comes from inflammation inside the body (Figure 1). HS connects to higher levels of several inflammation causing proteins – e.g. tumor necrosis factor alpha (TNF-α), interleukin-17 (IL-17) and interleukin-23 (IL-23). These cytokines are integral to the auto-inflammatory mechanisms driving HS [9-11]. The innate immune response also plays a crucial role in HS pathogenesis, involving significant contributions from T helper cells (Th1 and Th17) and cytokines such as IL-1β and interferon-gamma (IFN-γ). Dysregulation of these immune components results in chronic inflammation and subsequent tissue damage [12-15]. Chronic inflammation in HS is probable to affect brain pathways, causing psychiatric symptoms. Evidence shows that anti-inflammatory treatments could help with depression in people with HS. The social impact of HS - such as stigma and visible changes - has a major impact on the psychological distress of patients. This stress is likely to lead to depression and anxiety, demonstrating the need for comprehensive care that focuses on both the physical and mental aspects of health in HS [1].

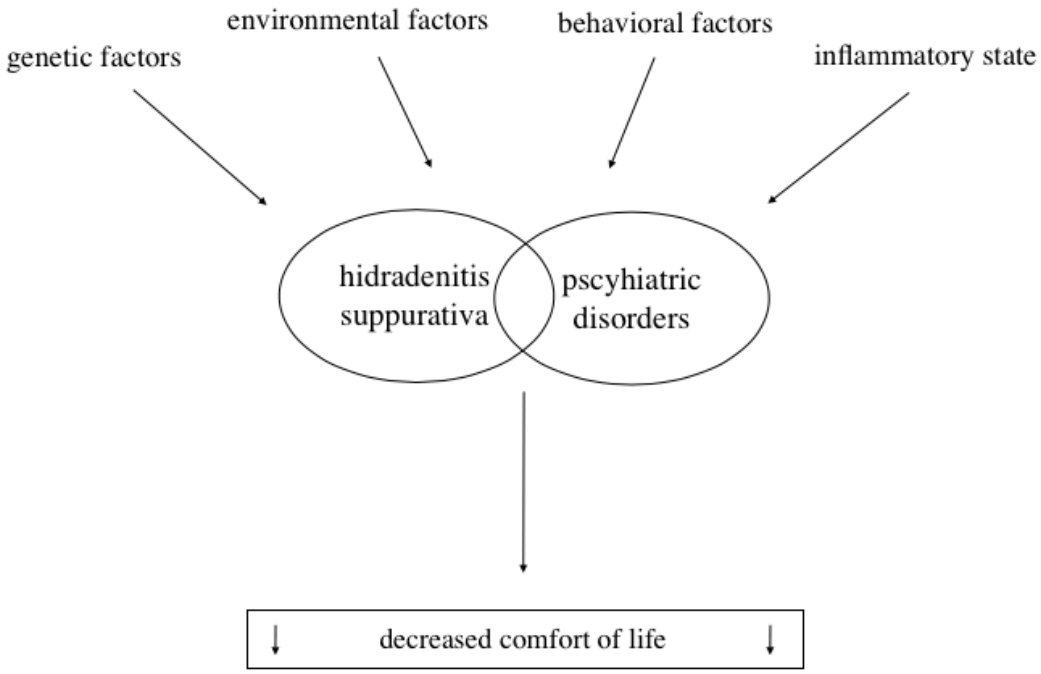

Figure 1. Potential correlation between triggering factors, hidradenitis suppurativa and mental disorders

The Impact of HS on Patients' Lives

HS has a significant impact on patients' lives. The lesions associated with the disease are characterized by pain, and the condition is often recurrent. A key aspect is the chronicity of the disease, which requires long-term treatment. HS affects patients' daily functioning, as well as their social and professional lives, leading to a range of physical and emotional challenges.

Skin lesions may appear in visible areas, resulting in permanent scarring and deformities [1]. These lesions are often perceived by patients as unsightly, contributing to reduced self-esteem and feelings of shame. Shame is commonly associated with the odor of the lesions, the presence of scars, as well as itching and pain [16]. Chronic pain resulting from abscesses, fistulas, and skin nodules significantly impairs daily functioning, causing difficulties with even basic activities, such as dressing or moving. This can sometimes lead to a loss of independence and the need for assistance from others during these periods. Frequent relapses and the unpredictable course of the disease generate feelings of anxiety and insecurity among those affected by HS. Flare-ups of HS can easily lead to mood disturbances. Patients with HS may experience fear of being judged by others, often opting out of activities that involve exposing their skin [16, 17].

The damaged skin may also cause some stigma and social exclusion which could add to the stress of the disease. HS patients frequently report self-isolation due to low self-esteem. Some of these patients change their clothes made times within a day or take baths more than once a day to try and remove the anxiety of whether other people can smell them. Finally, they might try to avoid certain arm or underarm positions to ensure that others do not smell the odor [16, 17].

There has also been some indications of variation in social confidence and self-image, depending on the extent of the severity of HS attendant symptoms. Some of the patients that have skin lesions consider themselves to be 'not worthy' or 'not lovable' and as such can greatly sanction their social interactions and sexual status. In addition, these patients are seen to undergo economic stress caused by limited work time and sick leaves that they take to fend off from low-paying jobs [16, 18].

Several tools are available to assess the quality of life of these patients, such as the DLQI (most commonly used), HSQoL, and VAS. The severity of the disease is typically assessed using the Hurley classification [1, 19].

There is evidence that comorbid psychiatric disorders are more prevalent in patients with HS compared to the general population [5]. Furthermore, studies have demonstrated how chronic inflammatory skin diseases can affect the activity of the central nervous system [20]. It is also important to note that the skin and the brain originate from the same embryonic layer during fetal development [1]. These factors suggest that patients with HS may experience mental and psychiatric disorders, such as depression, anxiety, psychotic disorders, bipolar affective disorder, substance abuse, and an increased risk of suicide [1, 3, 21].

Depression

Due to its chronic and painful course and social stigma, HS is often associated with depression [1]. Depression is almost twice as likely to occur in HS patients as in healthy individuals, and a more severe course of HS results in a more severe form of depression [18, 22].

The relationship between HS and depression comorbidity has been repeatedly reviewed in the literature. In a 2018 retrospective study by the Finnish Healthcare Registry, major depression was the most common psychiatric disorder in patients affected by HS (15.3%), occurring more frequently than in patients with psoriasis or melanocytic nevi. The study was conducted on a large number of participants (n = 4381) and included detailed diagnoses from psychiatric hospitals [3]. In a 2014 Israeli study of 3207 patients with HS and 6412 patients without HS, depression was diagnosed in 5.9 % of patients with HS and 3.5 % of patients without HS, and depression was more common in women than men [23]. Another study, conducted between 1968 and 2008 in the USA, found a prevalence of depression in 43% of patients affected by HS. The study was conducted with a large control sample (n = 1263), but was restricted to one county, which may have biased the results [24]. In a study conducted on the Polish population in 2020/2021, symptoms suggestive of depression were found in 41.2% of patients. There was no significant difference in the prevalence of depression in women (45.9%) and men (35.8%). Among HS patients presenting with symptoms of depression- 44.7% of patients were diagnosed with moderate depression, 38.3% of patients with mild depression, 10.6% of patients with moderately severe depression and only 6.4% of patients with severe depressive symptoms. However, this study did not show a correlation between depression severity and HS severity, but the limited sample size (n = 114) may have influenced the results [25]. A 2018 systematic review and meta-analysis, including 10 large studies (n = 40 307), showed that the overall prevalence of depression was 16.9%. It was evidenced that in studies that used clinical criteria to diagnose depression, the prevalence was lower (11.9%) compared to studies that used a screening diagnostic tool (26.8%) [26].

Generalizing, current systematic reviews and meta-analyses, have shown that depression affects approximately 1/4 of HS patients [27]. We can see how the results of studies analysing the prevalence of HS-related depression vary depending on the coverage of the study, the size of the study sample or the instruments chosen to diagnose depression.

Although the prevalence of depression among people with HS appears to be high, there are currently few hypotheses that have been proposed to explain this association. Three main theories have emerged from the available literature. It is well known that HS patients experience a deterioration in social, sexual and occupational quality of life. The acute phase of the disease causes pain, unpleasant smelling purulent lesions, discomfort, resulting in distress, embarrassment and anxiety. These various factors can contribute to depression. In addition, HS has been linked to other comorbidities, including obesity and chronic metabolic disorders, which, according to some researchers, can significantly affect the mental wellbeing of affected individuals. Finally, studies have shown that inflammatory cytokines in conditions such as psoriasis and atopic dermatitis can affect the release, reuptake and metabolism of neurotransmitters and their receptors. It has been hypothesised that a comparable mechanism may also take place in HS [1].

Anxiety

Anxiety is a normal physiological response to daily stressors and potentially harmful situations, often coexisting with depression and other mental health disorders. The available data on the prevalence of anxiety in patients with hidradenitis suppurativa (HS) show variability, likely due to differing diagnostic criteria employed across studies [1].

Patel et al. demonstrated that approximately one in five adults with HS suffers from anxiety. A retrospective study from 2018 (n = 4881), conducted by the Finnish Health Care Register, found anxiety to be the second most common disorder among patients with HS (6.9%), following depression [3]. In a 2014 study from Israel, which involved 3207 patients with HS and 6412 without, anxiety was diagnosed in 3.9% of HS patients and 2.4% of non-HS patients. Notably, anxiety was more prevalent among women with HS compared to their male counterparts [21].

A study conducted within the Polish population between 2020 and 2021 reported that 40.4% of patients with HS experienced anxiety. No significant gender differences in the severity of anxiety symptoms were observed. Among those affected, the majority exhibited mild anxiety (63.1%), while moderate anxiety was reported by 21.7%, and severe anxiety by 15.2% [25]. Jalenques et al. also confirmed the relationship between anxiety and HS [28].

Although the findings from different studies vary, anxiety is clearly prevalent among individuals with HS (studies relying on subjective questionnaires often overestimate the results) [1].

As with depression, the precise mechanism underlying this relationship remains unclear, but the etiology is likely multifactorial. HS imposes a substantial burden on the mental health of affected individuals. Chronic pain can provoke feelings of anxiety and concerns about further deterioration in health, creating a state of persistent tension. In addition, the unpredictable nature of inflammatory flare-ups adds to the stress and anxiety when symptoms reoccur [16, 17]. Healthcare providers often encourage patients to stop smoking and lose weight, which could lead to further anxiety [29].

Such behavioral alterations often lead to social and professional retreating that may worsen social anxiety and promote depressive symptoms [16, 17]. In addition, HS treatments, including biologic therapies, immunosuppressants or antibiotics, can have severe side effects. Besides, the HS treatments themselves can have considerable side effects, such as biologic therapies, immunosuppressants, or antibiotics. This is aggravated by the uncertainty of the treatment outcome and also fear of future complications. The long intake of drugs, especially in view of future risk of side effects, is often questioned by the patients.

Bipolar affective disorder

A population-based study found a strong link between HS and bipolar disorder - HS patients had bipolar disorder more often than others (0.7% vs. 0.1%). This association remained constant after considering several factors such as age, gender and smoking habits. However, considering body mass, the association lost significance. This indicates a potential role of cardiometabolic factors in this association [30]. Similarly, research by Huilaja et al. reported an association between HS and bipolar disorder, with an odds ratio of 1.81 (95% confidence interval: 1.47–2.23) [3]. Inflammatory markers, such as high-sensitive CRP (hsCRP) and Interleukin 6 (IL-6), have been associated with the progression of bipolar disorder, particularly in females. Elevated levels of these markers correlated with a greater frequency of manic and depressive episodes, highlighting a possible gender-dependent interaction between inflammation and mood dysregulation in bipolar disorder [31]. Similarly, hidradenitis suppurativa (HS) is strongly associated with chronic systemic inflammation. The pathophysiology of HS is characterized by increased activity of pro-inflammatory cytokines, including tumor necrosis factor-alpha (TNF-α), interleukin-17 (IL-17), and interleukin-23 (IL-23), which play a key role in driving auto-inflammatory processes [9-12].

This points to systemic inflammation as a shared unifying mechanism between HS and mental illness, with the suggestion arising for more work on anti-inflammatory therapies to alleviate not only dermatological but also psychological symptoms [32]. In HS, the pathological inflammatory reaction not only causes its typical skin lesions, but also the brain (CNS) system, HS could be plugged into the etiology of psychiatric disorders, including mood disorders.

Schizophrenia

A substantial body of research has demonstrated a robust correlation between hidradenitis suppurativa (HS) and schizophrenia, with individuals diagnosed with HS exhibiting a markedly elevated risk of developing schizophrenia when compared to the general population. A nationwide cohort study conducted in Israel found a tenfold increase in the prevalence of schizophrenia in HS patients compared with controls (1.4% vs. 0.4%; $P < 0.001$) [33]. Furthermore, multivariate analysis demonstrated an independent association between HS and schizophrenia, with an odds ratio of 1.44 (95% CI: 1.01-2.07; $P < 0.05$) [3, 34].

The potential underlying mechanisms linking HS and schizophrenia may involve common immune dysfunction. Evidence suggests that HS is characterized by cytokine dysregulation and immune system abnormalities, with elevated levels of inflammatory markers. At the same time, similar patterns of cytokine derangements have been found in psychiatric disorders such as schizophrenia, and, thus, a common inflammatory pathway is implied.

In addition, central nervous system dysregulation in the form of alterations due to the endemic chronic inflammation in HS may play a role in the development of immune-mediated mechanisms of comorbidity [33].

Environmental (e.g., smoking) factors have been shown to contribute substantially to this association. Smoking is highly prevalent in people with schizophrenia and even more so in patients with schizophrenia and HS. The possible role of smoking as HS episode inducer, and the putative aggravation of psychiatric symptoms by its action through dopaminergic pathways are of great interest. The interaction of smoking, stress and extreme life events could act as another environmental determinant connecting these kinds of events [3].

The clinical relevance of this association is that co-occurrence of HS and schizophrenia creates increased burden of the patient. In both conditions, the disease is often, and at times, undiagnosed and undertreated and medical care may be delayed, potentially worsening disease trajectories. HS is often misdiagnosed or overlooked for a variety of reasons, including patient delay in seeking medical help, or failure on the part of doctors to recognize its symptoms. A similar tendency towards suboptimal treatment is observed in cases of psychiatric comorbidities, such as schizophrenia, that are prevalent among HS patients [35, 36].

The use of medication further complicates this association, as many antipsychotic drugs commonly prescribed for schizophrenia and bipolar disorder are associated with significant weight gain [37].

Obesity is a known exacerbating factor in HS, with weight loss shown to reduce the severity and frequency of lesions [38]. However, individuals diagnosed with schizophrenia are approximately twice as likely to be obese in comparison with those not diagnosed with the condition. Furthermore, it has been documented that up to 84% of individuals diagnosed with bipolar disorder are overweight or obese [39, 40].

Antipsychotics of a more mature generation, such as olanzapine and clozapine, have been associated with a higher propensity for weight gain. This tendency is followed by quetiapine, risperidone and lithium. Conversely, newer agents such as aripiprazole, ziprasidone, carbamazepine and lamotrigine have been associated with a reduced risk of weight gain and may be more appropriate in patients with HS and psychiatric disorders to minimize the cumulative disease burden [41].

Furthermore, the administration of certain psychotropic medications, such as lithium, has been demonstrated to exacerbate dermatological symptoms by inducing acne or other skin-related adverse effects, thereby further complicating the management of HS. The correlation between persistent inflammation and psychiatric symptoms underscores the necessity for comprehensive, integrated care strategies to enhance patient outcomes [42].

Given that, in both HS and schizophrenia, suicide attempts have been found to be at elevated rates, it is now essential to emphasize the need to prioritize the early detection and treatment of both disorders. Multidisciplinary care approaches that consider both dermatological and psychiatric disease needs, as well as weight management and individual pharmacologic therapies, are critical to alleviating disease burden and enhancing quality of life in this patient group [33].

Suicide

Suicide is the most extreme form of self-harm and the leading cause of death among psychiatric patients. It is considered the most severe symptom of depression, and severe depression significantly increases the risk of suicide mortality [1, 43].

A Danish study conducted in 2018 identified an increased suicide risk in patients with HS (n = 7,732), with 11 patients committing suicide over a 5-year follow-up period [44]. According to a Finnish study from 2015 (n = 4,373), suicide was the cause of death for 22 deceased patients, with a predominance of women [45]. In a more recent study conducted between 2020 and 2021 on a Spanish population (n = 136), it was demonstrated that the suicide risk in patients with HS is higher than in the general population, with 21.3% of participants presenting moderate to severe suicide risk. This risk was significantly associated with the presence of co-occurring psychiatric disorders and a history of biological treatments. A protective factor identified was a family history of HS, suggesting that patients with close relatives who share the same condition may cope better with the disease [46].

In comparison, the frequency of suicidal thoughts in other dermatological conditions appears to be considerably lower, with 12.7% of all dermatological outpatients reporting suicidal ideation. For, instance, among specific conditions, 17.3% of patients with psoriasis and 9.3% of those with eczema report suicidal thoughts, as shown in a study by Dalgard et al [47] . This difference may be explained by the more significant impact of HS on patients' quality of life, including the impairment of daily activities, body image, and significant pain [48, 49].

Substance abuse

Individuals affected by HS experience chronic pain and are at increased risk for psychological and emotional disorders, which may lead to substance use disorders. According to a cross-sectional survey conducted in the United States in 2018 (n = 32,625), the most commonly used substances among HS patients were alcohol (47.9%), opioids (32.7%), and cannabis (29.7%) [50]. All of these substances are known to be used to alleviate pain, which, according to patients, is the most problematic symptom of HS [1, 51]. The first-line pharmacological approach to pain management in HS includes topical analgesics, oral paracetamol, and oral non-steroidal anti-inflammatory drugs (NSAIDs). Second-line treatment involves oral opioids [52]. Opioids are prescribed for pain management in over half of the patients (60%) [53]. According to a Danish study (n = 27,765), patients most commonly use high-proof alcohol/spirits [54]. The use of cannabis is also increasing; a French study conducted between 2016 and 2018 (n = 503) found that cannabis use among HS patients was higher than in the general population [55].

Discussion

Hidradenitis Suppurativais a severe dermatologist disease that affects not only patient's physical health but also has an important psychological impact. This potent connection between HS and different types of psychiatric disorders has significant implications for our understanding of the interplay between chronic inflammation and mental health. It has also been shown that the chronic systemic inflammation characteristics of HS, driven by cytokines including TNF-α, IL-17 and IL-23, may not only dispose to skin lesions but also to involvement of central nervous system pathways, which may exacerbate mental health symptoms.

The psychosocial effects of HS are tremendous. For those with visible skin conditions, physical disfigurement can be a source of considerable social stigma and be detrimental to self-esteem. The social stigma of patients withdrawing from social connections because of the fear of being judged prevents patients from fully engaging socially and professionally, which is a dire outcome. Visible skin lesions, the chronic pain, aggravates the emotional burden of patients leading to anxiety and depression. Moreover, the uncertainty surrounding one's flare-ups inevitably weighs down these feelings further, creating a constant feeling of insecurity and hopelessness. Moreover, it has been found that HS patients often suffer from comorbid psychiatric illness like depression, anxiety, bipolar disorder, and even schizophrenia, reinforcing the importance of treating the individual as a whole - both their physical and mental health needs.

A connection exists between HS and depression, most notably that is indeed a consistent relationship, as studies show increased rates of depression in HS patients compared. The chronic and painful nature of the disease, coupled with the burden of social stigma and visible disfigurement, greatly compounded mental health issues, with an estimated 25% of patients suffering from depression. Considering that high prevalence of anxiety and depression suggest the need for early mental health intervention in HS patients, in addition to dermatological treatment.

Like HS, the relationship with bipolar disorder is beginning to emerge, with research demonstrating an association between chronic inflammation and mood dysregulation in both conditions. These results also lead to questions about whether inflammation may play a role in psychiatric disorders like HS, and help identify areas for future work studying the pathophysiology of mood disorders associated with HS. In addition, HS patients have a higher than expected occurrence of both suicidal ideation and suicidal behavior, especially when comorbid psychiatric disease is present. The constant suffering, disfigurement and psychological distress associated with chronic illness has been demonstrated to result in elevated rates of suicide in HS patients. This observation underscores the necessity for the implementation of comprehensive mental health screening initiatives and suicide prevention strategies tailored to individuals with HS. Furthermore, the use of substances such as alcohol, opioids and cannabis to alleviate the pain associated with the disease is a common practice among individuals with HS.

Conclusion

Research conducted to date, clearly marks the high magnitude of the problems faced by HS patients, both in terms of physical and mental health. The symptoms of the disease, its long-term course, its unpredictable nature and the frequent social stigma undoubtedly contribute to an increased risk of psychiatric disorders, where the most common comorbid psychiatric disorders associated with HS are: depression, anxiety, bipolar affective disorder, schizophrenia, substance abuse and suicidal thoughts. For this reason, it is extremely important to take into account the high psychiatric burden associated with this disease and to consider the need for psychiatric consultation in the treatment of patients with HS. A multidisciplinary treatment has to be instituted (dermatological and psychical care).

The routine establishment of mental health monitoring include screening, early intervention, and the social psychological difficulties encountered by HS patients, cannot but improve the personal quality of life and alleviate the long-term psychological burden brought by this disease.

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Author's contribution:

Conceptualisation: Alicja Tabian
Methodology: Bartłomiej Roszkowski
Software: Alicja Tabian, Lidia Mądrzak, Bartłomiej Roszkowski
Check: Magdalena Pałdyna, Ewelina Wójcicka-Biało
Formal analysis: Bartłomiej Roszkowski
Investigation: Alicja Tabian, Lidia Mądrzak
Resources: Alicja Tabian, Bartłomiej Roszkowski
Data curation: Bartłomiej Roszkowski
Writing-rough preparation: Alicja Tabian, Lidia Mądrzak
Writing review and editing: Alicja Tabian, Lidia Mądrzak, Magdalena Pałdyna, Ewelina Wójcicka-Biało
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Project administration: Alicja Tabian

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